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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,291	03/25/2004	Cynthia C. Bamdad	M1015.70002US01	6035

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EXAMINER	
COUNTS, GARY W	
ART UNIT	PAPER NUMBER
1641	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,291	BAMDAD ET AL.	
	Examiner	Art Unit	
	GARY W. COUNTS	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *217-241* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *217-241* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/11/05 & 03/16/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the clams

The approval on August 4, 2008 of the petition under 37 CFR 1.137(b), filed on December 13, 2007 to revive the current application is acknowledged. Thus, the amendment filed December 13, 2007 is acknowledged and has been entered. Currently, claims 217-241 are pending and under examination.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 233 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 233, line 7, the recitation “the allowing step” there is insufficient antecedent basis for this limitation.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 217, 218 and 233-235 are rejected under 35 U.S.C. 102(b) as being anticipated by Mercolino et al (US 5,369,036).

Mercolino et al disclose a method of immobilizing a particle (colloidal particle) with a support such as nitrocellulose paper (non-colloidal structure) (col 3-6) (figures 1-3) (col 8). Mercolino et al disclose that the particle comprises a dye (signal entity). Mercolino et al disclose that the particle is linked to a ligand such as an antibody (binding partner for antigen). Mercolino et al disclose that the support (non-colloidal structure) is linked to an antigen (biological agent) which is specific for the ligand of the particle. Mercolino et al disclose detecting the binding of the particle to the support.

With respect to the recitation "non-covalently linked to the non-colloidal structure via the agent and the binding partner (as recited in claim 233). Mercolino et al disclose the same agent and binding partner (antigen/antibody) as currently disclose on pages 8-9 of the instant application. Therefore, it is inherent that the particle would be non-covalently linked to the non-colloidal structure.

5. Claim 217 is rejected under 35 U.S.C. 102(e) as being anticipated by Sigal et al (US 6,319,670).

Sigal et al disclose a method comprising colloidal particles having one or more assay ligands immobilized on its outer surface. Sigal et al also disclose that the colloidal particles have plurality of electrochemilumiinescent moieties (signaling entity) immobilized on the particle. Sigal et al disclose assays for an analyte of interest comprising forming a composition of the sample and one or more colloidal particles, incubating the composition to form a complex and causing the complex to bind to an assay-ligand immobilized on an electrode (non-colloidal structure) and determining the presence of the reactants (col 2, line 47 – col 3, line 5). Sigal et al disclose that the assay-ligands include proteins (oligopeptides, polypeptides) and nucleic acids (col 3, lines 32-56).

6. Claims 217, 218, 222, 223, 225-227, 230, 231, 233-235, 239 and 240 are rejected under 35 U.S.C. 102(e) as being anticipated by Bamdad et al (US 6,541,617).

Bamdad et al disclose method for immobilizing a colloid particle to a non-colloidal structure. Bamdad et al disclose a transport particle (5) comprising a linker (60) and a binding ligand (55) (e.g. Fig 1C, col 2 - col 3). Bamdad et al disclose that the transport particle can be colloidal (col 37). Bamdad et al disclose an electrode (non-colloidal structure (85) comprising a linker (60) and a binding ligand (65) (e.g. Fig 1C). Bamdad et al disclose the ligand (65) of the non-colloidal structure binds to the ligand (55) of the colloidal transport particle to immobilize the colloidal particle to the non-colloidal structure. Bamdad et al disclose that the colloidal transport particle can comprise a fluorescent label (signaling entity) (col 41). Bamdad et al discloses the detection complexes comprising the colloidal particle bound to the non-colloidal structure.

Bamdad et al disclose the particle can comprise self-assembled monolayers (SAM) (e.g. col 2) (It is noted that in the Remarks section of the amendment filed 12/13/07 applicant directed Examiner's attention to paragraph 91 in the patent application publication number US 2005/0148101 for support for the term "non-adsorbent surface", a review of which indicates that SAM's resist nonspecific adsorption without protein blocking steps). Thus, Bamdad teaches a non-adsorbent surface. Bamdad et al also discloses that the electrode can comprise SAM's (e.g. col 9-10 and that the electrodes can be chips)(e.g. col 10).

With respect to the recitation "non-covalently linked to the non-colloidal structure via the agent and the binding partner (as recited in claim 233). Bamdad et al disclose the same agent and binding partner (antigen/antibody) (e.g. col 27) as currently disclose on pages 8-9 of the instant application. Therefore, it is inherent that the particle would be non-covalently linked to the non-colloidal structure.

7. Claims 217 and 221 are rejected under 35 U.S.C. 102(e) as being anticipated by Oberhardt (US 6,251,615).

Oberhardt discloses a method comprising providing an immobilized cell (non-colloidal structure) and contacting the cell with a fluorescent particle (colloidal particle) which comprises a ligand to bind to the immobilized cell (col 17, and Fig 7C). Oberhardt discloses detecting the immobilized particle bound to the cell (non-colloidal structure). Oberhardt et al disclose that the particle can comprise a signaling entity such as a dye (col 11, lines 27-30), col 15, lines 65-67).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 219, 228 and 236 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bamdad et al in view of Charych et al (US 6,001,556).

See above for the teachings of Bamdad et al.

Bamdad et al differ from the instant invention in failing to teach allowing the colloidal particle the ability to fasten to the non-colloidal structure in the presence of a candidate drug for interruption of the binding of the ligand.

Charych et al disclose a competitive assay in which a drug candidate is introduced into a system containing a receptor and its reciprocal binding partner. Charych et al disclose that if the drug binds to the receptor or modifies the binding partner's binding capacity, there is a decrease in the signal (col 20, lines 1-40). Charych et al disclose that this provides for the development and improvement of drugs by observing competitive inhibition of natural binding events between all surfaces or binding sites and their natural bioactive ligand.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate candidate drugs and their reagents as taught by Charych et al into the method of Bamdad et al because Charych et al shows that that this provides for the development and improvement of drugs by observing competitive

inhibition of natural binding events between all surfaces or binding sites and their natural bioactive ligand. Also, with respect to the recitation "allowing the colloidal particle the ability to fasten to the non-colloidal structure in the presence of a candidate drug". Since Bamdad et al provides the same binding partners as currently recited, the binding partner of Bamdad et al would have the ability to fasten to the non-colloidal structure in the presence of a candidate drug.

Further, the recitation "for interruption of binding of the ligand to a target" is a recitation of intended use and does not provide any positive active method steps. The examiner notes that such statements are directed to the intended use of the claimed invention. Applicant is reminded that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art. If the prior art is capable of performing the intended use then it meets the claim. In the instant case, Bamdad et al teaches the same components and structures as currently recited and thus would have the ability to fasten to the non-colloidal structure in the presence of a candidate drug. Nevertheless, as shown above it would have been obvious to one of ordinary skill in the art to incorporate candidate drugs and their reagents as taught by Charych et al into the method of Bamdad et al because Charych et al shows that that this provides for the development and improvement of drugs by observing competitive inhibition of natural binding events between all surfaces or binding sites and their natural bioactive ligand.

13. Claims 220, 229 and 237 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bamdad et al in view of Altieri et al (US 6,346,389).

See above for the teachings of Bamdad et al.

Bamdad et al differ from the instant invention in failing to teach allowing the binding partner is adapted for linkage to the particle by glutathione/glutathione-s-transferase ligand interaction.

Altieri et al disclose glutathione-s-transferase fusion proteins which are immobilized onto a glutathione substrate. Altieri et al disclose that this immobilization allows for the separation of protein-protein complexes from uncomplexed forms, as well as to accommodate automation of an assay (col 10, lines 9-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate glutathione-s-transferase fusion proteins and glutathione substrates as taught by Altieri et al into the method of Bamdad et al because Altieri et al teaches that this immobilization allows for the separation of protein-protein complexes from uncomplexed forms, as well as to accommodate automation of an assay.

14. Claims 221 and 238 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bamdad et al in view of Zeytinoglu et al (US 6,080539).

See above for the teachings of Bamdad et al.

Bamdad et al differs from the instant invention in failing to teach the non-colloidal structure is a cell or tissue section.

Zeytinoglu teaches a method of detecting antigens in which an antibody is brought into contact with the body component in situ, and the resulting antibody/antigen complex is then detected either in situ or ex situ (col 2, lines 65 – col 3, line 2). A

retainer is applied to a body part such as the skin or mucous membrane of a patient, and one or more fist step antibodies are brought into contact with the body part within the confines of the retainer. Antibody/antigen complex is then amplified to an appropriate level, and a second step antibody is brought into contact with the complex to render the complex macroscopically detectable (col 3, lines 3-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to detect antigens in situ on cell or body tissue as taught by Zeytinoglu using the method and reagents of Bamdad et al because both teach using colloidal particles as a signal label for detecting a target analyte. One of ordinary skill would combine these references so that antigen on cells and or body tissue can be detected directly without taking biopsies and using biotin/streptavidin to amplify signal or to secure the binding of the antibody or the label to the complex being detected.

15. Claim 224, 232, and 241 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bamdad et al in view of Virtanen et al (US 6,342,349).

See above for the teachings of Bamdad et al.

Bamdad et al differs from the instant invention in failing to teach exposing the colloid particle and the non-colloidal structure to a substrate for an enzyme adapted for linkage to the non-colloidal structure, a molecule species linkable to the substrate via enzyme activity adapted for linkage to the particle, and an enzyme for the substrate.

Virtanen et al disclose an immunoassay method comprising colloid particles (col 37, lines 40-42), which are immobilized to a substrate (non-colloidal structure). Virtanen et al disclose that the colloid particle and the substrate (non-colloidal structure) are

exposed to cleavable spacer molecules (entity), which comprise cleavage sites. (see figures 1 and 3). Virtanen et al disclose that the cleavable spacer molecules bind to both the colloid particle and to the non-colloidal structure. Virtanen et al disclose that enzymes can be used as cleavage reagents by incorporating into the spacer a moiety that serves as the substrate (enzyme substrate) for the given enzyme (col 34, lines 15-17). Virtanen et al disclose that the analyte can be a drug candidate (col 55, line 53 – col 56, line 67). Virtanen et al disclose that the cleavable spacer molecules also comprise antibodies specific for the analyte of interest. Virtanen et al disclose that when the analyte (drug candidate) is present it binds to the antibody and prevents the chemical cleaving agent (enzyme) from cleaving the colloid particle from the surface (col 18, lines 1-16). Virtanen et al disclose that the presence and absence of the colloid particle may then be detected. Virtanen et al teaches that such cleavable signal embodiments provide advantages for immunoassays and provides for both fast and sensitive detection (col 19).

It would have been obvious to incorporate substrates, enzymes and molecular species such as taught by Virtanen et al into the method of Bamdad et al because Virtanen et al teaches that it is known in the art to use such reagents for determining the bound state of non-colloidal structure to a colloidal particle and also teaches that such embodiments provides advantages for immunoassays and provides for both fast and sensitive detection (col 19).

Response to Arguments

16. Applicant's arguments filed December 13, 2007 have been fully considered but they are not persuasive.

Applicant argues that Sigal fails to disclose or suggest using a signaling entity that is not an electrochemiluminescent moiety on the surface of the colloid. This is not found persuasive because the claims do not specifically exclude an electrochemiluminescent moiety and further one of skill in the art would recognize that the term electrochemiluminescent moiety of Sigal would encompass the chemiluminescent moiety currently recited.

Applicant argues that Bamdad et al fails to disclose or suggest providing an agent linked to a non-colloidal structure and a binding partner of the agent linked to the colloid particle. This is not found persuasive because of reasons stated above (see rejection above concerning the Bamdad et al reference).

17. Applicant argues that Oberhardt fails to disclose or suggest attaching a signaling entity to the colloid particle. This is not found persuasive because (1) it is noted that the features upon which applicant relies (i.e., attaching a signaling entity to the colloid particle) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). (2) Oberhardt specifically teaches that the particle can comprise a signaling entity such as a dye.

Conclusion

18. No claims are allowed.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY W. COUNTS whose telephone number is (571)272-0817. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on (571) 272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Gary W. Counts/
Examiner, Art Unit 1641

/Mark L. Shibuya, Ph.D./
Supervisory Patent Examiner, Art Unit 1641